

#2



OIPE

ENTERED

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/080,839

DATE: 03/08/2002

TIME: 15:17:10

Input Set : A:\TSRI8131.SEQ.TXT

Output Set: N:\CRF3\03082002\J080839.raw

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4 <110> APPLICANT: Schimmel, Paul
5   Wakasugi, Keisuke
6   Friedlander, Martin
8 <120> TITLE OF INVENTION: Tryptophanyl-tRNA Synthetase Derived
9   Polypeptides Useful For The Regulation of Angiogenesis
12 <130> FILE REFERENCE: TSRI-813.1
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C--> 14 <141> CURRENT FILING DATE: 2002-02-22
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15 <151> PRIOR FILING DATE: 2001-02-23
17 <160> NUMBER OF SEQ ID NOS: 13
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22 <211> LENGTH: 484
23 <212> TYPE: PRT
24 <213> ORGANISM: Artificial Sequence
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27 <223> OTHER INFORMATION: Recombinant human trpRS
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33   20               25               30
34 Lys Asp Glu Ile Asp Ser Ala Val Lys Met Leu Val Ser Leu Lys Met
35   35               40               45
36 Ser Tyr Lys Ala Ala Ala Gly Glu Asp Tyr Lys Ala Asp Cys Pro Pro
37   50               55               60
38 Gly Asn Pro Ala Pro Thr Ser Asn His Gly Pro Asp Ala Thr Glu Ala
39   65               70               75               80
40 Glu Glu Asp Phe Val Asp Pro Trp Thr Val Gln Thr Ser Ser Ala Lys
41   85               90               95
42 Gly Ile Asp Tyr Asp Lys Leu Ile Val Arg Phe Gly Ser Ser Lys Ile
43   100              105              110
44 Asp Lys Glu Leu Ile Asn Arg Ile Glu Arg Ala Thr Gly Gln Arg Pro
45   115              120              125
46 His His Phe Leu Arg Arg Gly Ile Phe Phe Ser His Arg Asp Met Asn
47   130              135              140
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49   145              150              155              160
50 Gly Arg Gly Pro Ser Ser Glu Ala Met His Val Gly His Leu Ile Pro
51   165              170              175
52 Phe Ile Phe Thr Lys Trp Leu Gln Asp Val Phe Asn Val Pro Leu Val
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58 Cys Gly Phe Asp Ile Asn Lys Thr Phe Ile Phe Ser Asp Leu Asp Tyr
59 225      230      235      240
60 Met Gly Met Ser Ser Gly Phe Tyr Lys Asn Val Val Lys Ile Gln Lys
61      245      250      255
62 His Val Thr Phe Asn Gln Val Lys Gly Ile Phe Gly Phe Thr Asp Ser
63      260      265      270
64 Asp Cys Ile Gly Lys Ile Ser Phe Pro Ala Ile Gln Ala Ala Pro Ser
65      275      280      285
66 Phe Ser Asn Ser Phe Pro Gln Ile Phe Arg Asp Arg Thr Asp Ile Gln
67      290      295      300
68 Cys Leu Ile Pro Cys Ala Ile Asp Gln Asp Pro Tyr Phe Arg Met Thr
69 305      310      315      320
70 Arg Asp Val Ala Pro Arg Ile Gly Tyr Pro Lys Pro Ala Leu Leu His
71      325      330      335
72 Ser Thr Phe Phe Pro Ala Leu Gln Gly Ala Gln Thr Lys Met Ser Ala
73      340      345      350
74 Ser Asp Pro Asn Ser Ser Ile Phe Leu Thr Asp Thr Ala Lys Gln Ile
75      355      360      365
76 Lys Thr Lys Val Asn Lys His Ala Phe Ser Gly Gly Arg Asp Thr Ile
77      370      375      380
78 Glu Glu His Arg Gln Phe Gly Gly Asn Cys Asp Val Asp Val Ser Phe
79 385      390      395      400
80 Met Tyr Leu Thr Phe Phe Leu Glu Asp Asp Lys Leu Glu Gln Ile
81      405      410      415
82 Arg Lys Asp Tyr Thr Ser Gly Ala Met Leu Thr Gly Glu Leu Lys Lys
83      420      425      430
84 Ala Leu Ile Glu Val Leu Gln Pro Leu Ile Ala Glu His Gln Ala Arg
85      435      440      445
86 Arg Lys Glu Val Thr Asp Glu Ile Val Lys Glu Phe Met Thr Pro Arg
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95 <211> LENGTH: 4877
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97 <213> ORGANISM: Artificial Sequence
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108 ctttctcgcc acgttcgcg gctttccccg tcaagctcta aatcgggggc tcccttagg 180

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111 ctttaatagt ggactcttgt tccaaactgg aacaacactc aacctatctt cggctctattc 360
112 ttttgattta taagggattt tgccgatttc ggcctattgg ttaaaaaatg agctgattta 420
113 acaaaaattt aacgcgaatt ttaacaaaat attaacgttt acaatttcag gtggcacttt 480
114 tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta 540
115 tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat 600
116 gagtattcaa catttcctgt tcgccttat tccctttttt gcggcatttt gccttcctgt 660
117 ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg 720
118 agtgggttac atcgaactgg atctcaacag cggtaaagatc cttgagagtt ttcgccccga 780
119 agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcgg tattatcccc 840
120 tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggg 900
121 tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg 960
122 cagtgtctgcc ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg 1020
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136 ccaccacttc aagaactctg tagcacccgc tacatacctc gctctgctaa tcctgttacc 1860
137 agtggctgct gccagtggcg ataagtctgt tcttaccggg ttggactcaa gacgatagtt 1920
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155 ggttactgga acgttgtgag ggtaaacaaac tggcggtatg gatgcggcgg gaccagagaa 3000
156 aaatcactca gggtaaatgc cagcgcttcg ttaatacaga tgtaggtgtt ccacagggt 3060
157 gccagcagca tcctgcgatg cagatccgga acataatggt gcagggcgct gacttccgcg 3120

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161 cccgtggcca ggacccaacg ctgcccagaga tctcgatccc gcgaaattaa tacgactcac 3360
162 tatagggaga ccacaacggt ttccctctag aaataatttt gtttaacttt aagaaggaga 3420
163 tatacat atg agc tac aaa gct gcc gcg ggg gag gat tac aag gct gac 3469
164 Met Ser Tyr Lys Ala Ala Ala Gly Glu Asp Tyr Lys Ala Asp
165 1 5 10
167 tgt cct cca ggg aac cca gca cct acc agt aat cat ggc cca gat gcc 3517
168 Cys Pro Pro Gly Asn Pro Ala Pro Thr Ser Asn His Gly Pro Asp Ala
169 15 20 25 30
171 aca gaa gct gaa gag gat ttt gtg gac cca tgg aca gta cag aca agc 3565
172 Thr Glu Ala Glu Glu Asp Phe Val Asp Pro Trp Thr Val Gln Thr Ser
173 35 40 45
175 agt gca aaa ggc ata gac tac gat aag ctc att gtt cgg ttt gga agt 3613
176 Ser Ala Lys Gly Ile Asp Tyr Asp Lys Leu Ile Val Arg Phe Gly Ser
177 50 55 60
179 agt aaa att gac aaa gag cta ata aac cga ata gag aga gcc acc ggc 3661
180 Ser Lys Ile Asp Lys Glu Leu Ile Asn Arg Ile Glu Arg Ala Thr Gly
181 65 70 75
183 caa aga cca cac cac ttc ctg cgc aga ggc atc ttc ttc tca cac aga 3709
184 Gln Arg Pro His His Phe Leu Arg Arg Gly Ile Phe Phe Ser His Arg
185 80 85 90
187 gat atg aat cag gtt ctt gat gcc tat gaa aat aag aag cca ttt tat 3757
188 Asp Met Asn Gln Val Leu Asp Ala Tyr Glu Asn Lys Lys Pro Phe Tyr
189 95 100 105 110
191 ctg tac acg ggc cgg ggc ccc tct tct gaa gca atg cat gta ggt cac 3805
192 Leu Tyr Thr Gly Arg Gly Pro Ser Ser Glu Ala Met His Val Gly His
193 115 120 125
195 ctc att cca ttt att ttc aca aag tgg ctc cag gat gta ttt aac gtg 3853
196 Leu Ile Pro Phe Ile Phe Thr Lys Trp Leu Gln Asp Val Phe Asn Val
197 130 135 140
199 ccc ttg gtc atc cag atg acg gat gac gag aag tat ctg tgg aag gac 3901
200 Pro Leu Val Ile Gln Met Thr Asp Asp Glu Lys Tyr Leu Trp Lys Asp
201 145 150 155
203 ctg acc ctg gac cag gcc tat ggc gat gct gtt gag aat gcc aag gac 3949
204 Leu Thr Leu Asp Gln Ala Tyr Gly Asp Ala Val Glu Asn Ala Lys Asp
205 160 165 170
207 atc atc gcc tgt ggc ttt gac atc aac aag act ttc ata ttc tct gac 3997
208 Ile Ile Ala Cys Gly Phe Asp Ile Asn Lys Thr Phe Ile Phe Ser Asp
209 175 180 185 190
211 ctg gac tac atg ggg atg agc tca ggt ttc tac aaa aat gtg gtg aag 4045
212 Leu Asp Tyr Met Gly Met Ser Ser Gly Phe Tyr Lys Asn Val Val Lys
213 195 200 205
215 att caa aag cat gtt acc ttc aac caa gtg aaa ggc att ttc ggc ttc 4093
216 Ile Gln Lys His Val Thr Phe Asn Gln Val Lys Gly Ile Phe Gly Phe
217 210 215 220
219 act gac agc gac tgc att ggg aag atc agt ttt cct gcc atc cag gct 4141
220 Thr Asp Ser Asp Cys Ile Gly Lys Ile Ser Phe Pro Ala Ile Gln Ala

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Input Set : A:\TSRI8131.SEQ.TXT

Output Set: N:\CRF3\03082002\J080839.raw

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221          225          230          235
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224 Ala Pro Ser Phe Ser Asn Ser Phe Pro Gln Ile Phe Arg Asp Arg Thr
225          240          245          250
227 gat atc cag tgc ctt atc cca tgt gcc att gac cag gat cct tac ttt 4237
228 Asp Ile Gln Cys Leu Ile Pro Cys Ala Ile Asp Gln Asp Pro Tyr Phe
229 255          260          265          270
231 aga atg aca agg gac gtc gcc ccc agg atc gcc tat cct aaa cca gcc 4285
232 Arg Met Thr Arg Asp Val Ala Pro Arg Ile Gly Tyr Pro Lys Pro Ala
233          275          280          285
235 ctg ttg cac tcc acc ttc ttc cca gcc ctg cag gcc gcc cag acc aaa 4333
236 Leu Leu His Ser Thr Phe Phe Pro Ala Leu Gln Gly Ala Gln Thr Lys
237          290          295          300
239 atg agt gcc agc gac cca aac tcc tcc atc ttc ctc acc gac acg gcc 4381
240 Met Ser Ala Ser Asp Pro Asn Ser Ser Ile Phe Leu Thr Asp Thr Ala
241          305          310          315
243 aag cag atc aaa acc aag gtc aat aag cat gcg ttt tct gga ggg aga 4429
244 Lys Gln Ile Lys Thr Lys Val Asn Lys His Ala Phe Ser Gly Gly Arg
245          320          325          330
247 gac acc atc gag gag cac agg cag ttt ggg gcc aac tgt gat gtg gac 4477
248 Asp Thr Ile Glu Glu His Arg Gln Phe Gly Gly Asn Cys Asp Val Asp
249 335          340          345          350
251 gtg tct ttc atg tac ctg acc ttc ttc ctc gag gac gac gac aag ctc 4525
252 Val Ser Phe Met Tyr Leu Thr Phe Phe Leu Glu Asp Asp Asp Lys Leu
253          355          360          365
255 gag cag atc agg aag gat tac acc agc gga gcc atg ctc acc ggt gag 4573
256 Glu Gln Ile Arg Lys Asp Tyr Thr Ser Gly Ala Met Leu Thr Gly Glu
257          370          375          380
259 ctc aag aag gca ctc ata gag gtt ctg cag ccc ttg atc gca gag cac 4621
260 Leu Lys Lys Ala Leu Ile Glu Val Leu Gln Pro Leu Ile Ala Glu His
261          385          390          395
263 cag gcc cgg cgc aag gag gtc acg gat gag ata gtg aaa gag ttc atg 4669
264 Gln Ala Arg Arg Lys Glu Val Thr Asp Glu Ile Val Lys Glu Phe Met
265          400          405          410
267 act ccc cgg aag ctg tcc ttc gac ttt cag aag ctt gcg gcc gca ctc 4717
268 Thr Pro Arg Lys Leu Ser Phe Asp Phe Gln Lys Leu Ala Ala Ala Leu
269 415          420          425          430
271 gag cac cac cac cac cac tgagatccgg ctgctaacaa agcccgaag 4768
272 Glu His His His His His His
273          435
275 gaagctgagt tggctgctgc caccgctgag caataactag cataaccct tggggcctct 4828
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283 <220> FEATURE:
284 <223> OTHER INFORMATION: human mini TrpRS in pET20B
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VERIFICATION SUMMARY

DATE: 03/08/2002

PATENT APPLICATION: US/10/080,839

TIME: 15:17:11

Input Set : A:\TSRI8131.SEQ.TXT

Output Set: N:\CRF3\03082002\J080839.raw

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L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date